

L 15966-46 EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b) IJP(c) JE/JG  
ACC NR: AP6002003 SOURCE CODE: UR/0170/65/009/006/0799/0801

AUTHOR: Summ, B. D.; Flegontova, N. I.; Goryunov, Yu. V.

RD  
B

ORG: State University im. M. V. Lomonosova, Moscow (Gosudarstvenny universitet)

TITLE: Method of determining the diffusion coefficients and solubility of adsorption-active metallic melts in polycrystalline metals

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 9, no. 6, 1965, 799-801

TOPIC TAGS: zinc, mercury, solubility, metal diffusion

ABSTRACT: Plates of polycrystalline zinc were kept in contact with mercury at room temperature and were subjected to extension at a rate of 24 mm/min. Measurements of the instantaneous strength as a function of time of preliminary contact with mercury gave the maximum solubility of mercury in zinc. They also showed that during the initial period of contact between mercury and zinc the instantaneous strength  $\sigma$  of zinc gradually decreases because mercury diffuses along the intergranular boundaries; longer contact causes the instantaneous strength to increase gradually as a result of diffusion of the melt into the

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UDC: 532.72

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ACC NR: AP6002003

volume of the grain. When all of the mercury has diffused into the zinc, the effect of adsorptive decrease in strength is no longer observed. Calculation of the coefficient of diffusion of mercury into zinc grains gave  $D \approx 10^{-12}$  cm<sup>2</sup>/sec at room temperature, and from this, the activation energy of diffusion was found to be  $8000 \pm 600$  cal/g-atom. Orig. art. has: 2 figures and 2 formulas.

SUB CODE: 11, 07 / SUBM DATE: 01Mar65 / ORIG REF: 007 / OTH REF: 002

bvk  
Card 2/2

L 18741-66 EWT(m)/EMP(t) IJP(c) JD/WB

ACC. NR: AP6005133

SOURCE CODE: UR/0126/66/021/001/0028/0032

61  
52  
BAUTHOR: Surn, B. D.; Ivanova, L. V.; Goryunov, Yu. V.; Dekartov, A. P.ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosuniversitet)TITLE: Effect of mercury soluble metals on the diffusion rate of mercury over the surface of polycrystalline zincSOURCE: Fizika metallov i metallovedeniya, v. 21, no. 1, 1966, 28-32TOPIC TAGS: metal diffusion, mercury, zinc, activation energy

ABSTRACT: The processes of the propagation of various metals over the surface of solids play an important role in semiconductor engineering, radioelectronics, powder metallurgy and many other fields of industry and science. Hence the study of methods of altering at will the rate of surface diffusion of metals is of major interest. In this connection the authors applied a new method of influencing surface diffusion, namely, the dissolution of a second component in the diffusion metal. The Hg-Zn pair was used for this purpose, because many metals dissolve in mercury at room temperature; moreover, at room temperature, Hg migrates fairly rapidly over the surface of Zn. The effect of the following metals soluble in mercury was investigated: Cd, Ga, In, Tl, Sn, Pb, and Bi (at room temperature they do not form chemical compounds with Hg or Zn). Droplets of Hg or Hg solution (mass 5 mg) were deposited in the center area of plates

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UDC: 539.219.3

L 18741-66

ACC. NR. AF6005133

9

of pure (99.9%) polycrystalline Zn measuring 5x100 mm, with a thickness of 1 mm, and their dimensions and appearance were investigated. It was found that within as little as 1 min the droplet would spread and cover the entire width of the plate. Experiments performed with the Hg solutions of the metals named above, on varying the concentration of each component from zero to its limiting solubility, showed that all the metals with a low solubility limit ( $\text{Ga}^{\text{71}}$ ,  $\text{Pb}^{\text{72}}$ ,  $\text{Sn}^{\text{73}}$ ,  $\text{Bi}^{\text{75}}$ ) accelerate the diffusion of Hg over the surface of Zn. A similar effect is produced by metals with a high solubility (Cd, In, Tl) if their concentration is low. Subsequent investigations of the mechanism of this effect by means of the  $\beta$ -active isotope  $\text{In}^{114}$  showed that the diffusion of the Hg-dissolved metal occurs simultaneously with the surface migration of Hg. The acceleration of diffusion in the presence of small (0.1-3.0 at.%) concentration of Hg-soluble metals is apparently due to the decrease in the activation energy of elementary acts of surface diffusion. It was also found, by contrast, that increasing the concentration of Hg-soluble metals above 3-4 at.% retards the rate of surface diffusion. The mechanism of this effect is as yet unclarified but it may be assumed that the presence of too many atoms of Hg-soluble metal may impede the diffusion migration of the adjacent Hg atoms. Thus, the dissolution of selected concentrations of certain selected metals in Hg affords an extremely effective method of regulating the rate of the surface diffusion of Hg over Zn. "The authors wish to express their profound gratitude to N. V. Peresov and Ye. D. Shchukin for their valuable counsel given during discussion of the findings of this study." Orig. art. has: 1 table, 3 figures.

SUB CODE: 11, 13, 20/ SUBM DATE: 03Web65/ ORIG REF: 009/ OTH REF: 001

Card 2123M

mercury corrosion

44, 55, 18

ACC NR: AP7008695

SOURCE CODE: UR/0020/67/172/005/1137/1140

AUTHOR: Portsov, A. V.; Goryunov, Yu. V.; Portsov, N. V.; Shchukin, Yo. D.;  
Robinder, P. A.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy  
universitet)

TITLE: Fine pulverization of metals in the presence of strongly adsorption-active  
metallic melts

SOURCE: AN SSSR. Doklady, v. 172, no. 5, 1967, 1137-1140

TOPIC TAGS: gallium, zinc, powder metal production, molten metal

ABSTRACT: On the basis of the assumption that the mechanical dispersion of solid metals should be accelerated in the presence of adsorption-active metallic melts, the pulverization of solid zinc in the presence of liquid gallium was studied. It was noted that quenched zinc alloys containing 1-6% Ga are converted after 5 min of pulverization into a powder with a particle size from one to several tens of microns. At higher Ga concentrations the pulverization ceased because a paste was formed. To prevent this, the particles formed by the pulverization were stabilized with butyl acetate. Gallium was found to speed up the pulverization and decrease the size of the particles formed. The effectiveness of its action (i. e., the decrease of the work of dispersion) was evaluated by determining the specific surface of the powder

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UDC: 541.18.053 : 546.3 + 532.6

ACC NR: AP7008695

formed as a function of time on the basis of sedimentation analysis. It was found that the introduction of even 1% Ga into zinc causes a 200-fold decrease of the work of dispersion. For the alloy with 10% Ga, the maximum surface is  $0.3 \text{ m}^2/\text{g}$ , which corresponds to a mean particle size of about  $1.5 \mu$ . Gallium also accelerates the pulverization of tin, cadmium, aluminum and bismuth. It is expected that the proposed method of preparing metal powders (fusion with small amounts of an adsorption-active metal followed by pulverization in a stabilizing medium) will find broad applications, especially in powder metallurgy. Orig. art. has: 3 figures.

SUB CODE: 11/ SUBM DATE: 14Apr66/ ORIG REF: 006/ OTH REF: 004

Card 2/2

ORLOV, Yu.V., inzh.; GORYUNOV, Yu.V., inzh.

Installation of built-in TNDM-110 current transformers. Energetik  
13 no.3:20-21 Mr '65.

(MIRA 18:7)

GORYUNOVA, A. A., Cand Med Sci -- (diss) "Dynamics of the physical development of children educated in the kindergartens of the city of Khar'kov." Khar'kov, 1960. 15 pp; (Khar'kov State Medical Inst); 300 copies; price not given; (KL, 50-60), 36)

GORYUNOVA, A.A., assistant

Indexes of the physical development of preschool age children  
in connection with typological peculiarities of their higher  
nervous activity. Gig. i san. 25 no.2:90-92 F '60. (MIRA 13:6)

1. Iz kafedry gigiyeny detey i podrostkov Khar'kovskogo medi-  
tsinskogo instituta.  
(CENTRAL NERVOUS SYSTEM physiol.)  
(GROWTH in inf. & child.)

KOVAL'KOVA, Z.P., kand.med.nauk; SYCHEV, A.A., kand.med.nauk; GORYUNOVA, A.A.,  
assistant

Dynamics of the physical development of school children in Kharkov for  
20 years. Gig. i san. 26 no.10:31-34 0 '61. (MIRA 15:5)

1. Iz kafedry gigiyeny detey i podrostkov Khar'koyskogo meditsinskogo  
instituta.  
(KHARKOV--CHILDREN--GROWTH)

UDACHIN, D.A.; GORYUNOVA, A.A.

Grain Culture in the Russian Federation the All-Union Agricultural  
Exhibition. Zemledelie 6 no.9:5-14 S '58. (MIRA 11:9)  
(Grain)

GORYUNOVA, A.A.

Over-all mechanization in field-crop production. Zemelodelie 23  
no.4:83-90 Ap '61. (MIRA 14:3)  
(Agricultural machinery)

ROZENTRETER, R.G.; TKACHEVA, Z.S.; GORYUNOVA, A.A.; LILEYEV, I.S.

Sintering of soda-sulfate-limestone charges. Trudy Khim.-met.inst.  
Sib. otd. AN SSSR no. 15, 41-54 '60. (MIRA 14:6)  
(Aluminum-Metallurgy) (Sintering)

18.3100 2408

27216  
S/081/61/000/014/017/030  
B103/B226

AUTHORS: Rozentreter, R. G., Goryunova, A. A.

TITLE: Production of aluminum oxide and alkalis by sintering bauxites and potassium sulfate in redox calcination (under laboratory conditions)

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 14, 1961, 375, abstract 14K121. (Tr. Khim.-metallurg. in-ta. Sib. otd. AN SSSR, 1960, vyp. 15, 121-129)

TEXT: Sinters containing water-soluble alumina in an amount close to the theoretical one can be produced by sintering sulfate and soda - sulfate charges (without limestone) from bauxites of different compositions and from sulfurous bauxites in a redox atmosphere. The charge composition ( $Na_2SO_4 + Na_2CO_3 : Al_2O_3 = 1.1 - 1.2$ ) and the sintering conditions were determined. Sinters produced by sintering bauxite - sulfate, bauxite - soda - sulfate and bauxite - soda charges practically contain equal quantities of soluble alumina. In this case, sintering in redox

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Production of aluminum oxide...

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B103/B226

calcination proceeds without complications. The sinters retain a granular form and have a porous structure. During sintering all the sulfur passes over into the gaseous phase. [Abstracter's note: Complete translation.]

X

Card 2/2

ROZENTRETER, R.G.; BERSENEVA, N.S.; GORYUNOVA, A.A.

Sintering of aluminum silicates with limestone and a reducing agent in a pilot plant rotary furnace. Izv.Sib.otd.AN SSSR no.2: 61-67 '61.  
(MIRA 14:3)

1. Khimiko-metallurgicheskiy institut Sibirsckogo otdeleniya AN SSSR, Novosibirsk.  
(Aluminum silicate) (Limestone) (Sintering)

ROZENTRETER, R.G.; BERSENEVA, N.S.; GORYUNOVA, A.A.

Preparing alumina by the method of sintering aluminum silicates  
with limestone, soda and a reducing agent. TSvet. met. 36 no.7:  
42-47 J1 '63. (MIRA 16:8)  
(Aluminum-Metallurgy)

GORYUNOVA, A. G.

26630 Alkaloid pellet'erin iz list'ev granata. Trydy azerbaydzh. Nauch-issled.  
In-ta mnogolet. Nasazhdeniy. T. I., 1949 s. 74-80 - Biblnogo: 27, nazv.

SO: LETOPIS' NO. 35, 1949

8/016/60/000/05/30/079

AUTHOR: Semcheva, N.S., and Goryunova, A.G.

TITLE: A Stabilizer for Drying and Preserving Brucellosis Vaccine  
(Author's Summary).

PERIODICAL: Zhurnal mikrobiologii, epidemiologii i immunobiologii, 1960,  
No. 5, p. 98

TEXT: A comparative study was made of the preserving properties of various stabilizers in relation to a vaccinal strain of *Brucellus abortus* 19 - BA. The stabilizers tested were: (1) sacharose 10% and gelatine 1-1, 5-2-3%; (2) sacharose 20%, gelatine, 1-1, 5-2%; (3) sodium glutamate in concentrations of 0.1, 0.25, 0.5, 1 and 5% (for a dry supradermal brucellosis vaccine). The vaccinal specimens were washed with the various stabilizers, dried in a Dolinov drier to a residual moisture content of 1.5-3% and stored in a refrigerator at +4-6°C. The state of preservation was tested after 3, 6 and 12 months. The sodium glutamate stabilizer consisting of 20% sacharose and 1-3% gelatine preserved the *Brucellae* best.

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S/016/60/000/05/30/079

A Stabilizer for Drying and Preserving Brucellosis Vaccine (Author's Summary).

during the drying process. For long periods of storage (12 months), however, the 10% sacharose and 1-3% gelatine stabilizer proved more effective.

ASSOCIATION: Institut epidemiologii i mikrobiologii imeni Gamalei AMN SSSR  
(Institute of Epidemiology and Microbiology imeni Gamaleya of the AMN, USSR).

SUBMITTED: February 19, 1959

Card 2/2

L 10315-63  
ASD/AFWL--K/AR  
EWT(m)/ES(b)/BDS--AFFTC/

ACCESSION NR: AP3000259

S/0241/63/008/005/0077/0079

AUTHOR: Moryunova, A. G. (Moscow)

54

TITLE: Dynamics of lysozyme titer change in guinea pigs under ionizing radiation action

19

SOURCE: Meditinskaya radiobiologiya, no. 5, 1963, 77-79

TOPIC TAGS: lysozyme titer, ionizing radiation, lethal doses, guinea pig tears, guinea pig serum

ABSTRACT: Lysozyme is an important natural immunity factor found in almost all tissues and fluids of the organism and has a lytic effect on bacteria. It has been studied very little under radiation conditions. Experiments were conducted on guinea pigs irradiated with doses of 600, 300, and 200 r which corresponded to LD<sub>sub 100</sub>, LD<sub>sub 80</sub>, and LD<sub>sub 50</sub> on the thirtieth day. Lysozyme content was determined by guinea pig tears and serum. On the second day after irradiation of 600 r a drop in lysozyme titer is observed, and it remains reduced up to the death of the guinea pig. In guinea pigs irradiated with sublethal doses a drop in lysozyme titer is also observed, but in the process of convalescing from radiation sickness the lysozyme content becomes normal. Decrease in lysozyme is found to be

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L 10315-63

ACCESSION NR: AP3000259

a linear function of the radiation dose value. Decreased lysozyme in an organism during radiation sickness may be one of the factors affecting autoinfectious processes. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQD: 12Jun63

ENCL: 00

SUB CODE: 00

NO REF Sov: 000

OTHER: 000

Card 2/2

GORYUNOVA, A.G.

Study of the virulence of dysentery bacteria in irradiated animals;  
on a model of experimental keratoconjunctivitis. Zhur. mikrobiol.,  
epid. i immun. 40 no.6:133-134 Je '63. (MIRA 17:6)

1. Iz Instituta epidemiologii i mikrobiologii imeni Gamalei  
AMN SSSR.

CHAKHAVA, O.V.; GORYUNOVA, A.G.

In vitro production of lysozyme by histiocytes-macrophages. Antibiotiki  
10 no.6: 507-511 Je '65. (MIRA 18:7)

1. Otdel radiatsionnoy mikrobiologii i immunologii 'zav. M.A.Tumanyan)  
Instituta epidemiologii i mikrobiologii imeni N.F.Gamalei AMN SSSR,  
Moskva.

GORYUNOVA, A. I.

Biology of Balkhash perch. Izv. AN Kazakh. SSR. Ser. zool. no. 9:78-86  
'50. (MLRA 9:5)  
(Balkhash, Lake--Perch)

GORYUNOVA, A.I., kandidat biologicheskikh nauk; SEROV, N.P., kandidat biologicheskikh nauk.

Acclimatization of fish in Kazakhstan. Trudy sov. ikht. kom. no.3: 109-113 '54.  
(MLRA 7:8)

1. Institut zoologii Akademii Nauk Kazakhskoy SSR.  
(Kazakhstan--Fishes) (Fishes--Kazakhstan)

GORYUNOVA, A.I.

Ichthyofauna of the Dzhezkazgan Reservoir and ways for changing  
its composition. Izv. AN Kazakh. SSR. Ser. biol. no.9:111-121  
'55

(MIRA 9:4)

(DZHEZKAZGAN RESERVOIR--FISHES)

GORYUNOVA, A.I.

Development of fish fauna in Dzhorskagan Reservoir. Sbor. zool. po  
ikht. i gidrobiol. no.1:31-73 '56. (MIRA 10:4)  
(Dzhorskagan Reservoir--Fishes)

~~GORYUNOVA, A. I.; MARTEKHOV, P.P.; SIDOROVA, A.F.~~

Biology of the carp in Lake Biylyu-Kul' and Lake Ak-Kul' in  
Dzhambul Province. Sbor.rab.po ikht. i gidrobiol. no.1:252-260  
'56.

(Biylyu-Kul', Lake--Carp) (MLRA 10:4)  
(Ak-Kul', Lake--Carp)

GORYUNOVA

Deformities in fishes. Sbor.rab.po ikht. i gidrobiol. no.1:261-  
268 '56.  
(Biylu-Kul', Lake--Carp--Diseases and pests)  
(Ak-Kul', Lake--Carp--Diseases and pests)

(MLFA 10:4)

GORYUNOVA, A.

"Fish stocks of Lake Balkhash." Reviewed by A. Goriunova, Izv. AN  
Kazakh. SSR. Ser. biol. no.2:98-99 '57. (MIRA 11:3)  
(Balkhash, Lake--Fishes)

GORYUNOVA, A.I.

Materials on the study of fauna and flora of the Ili Delta. Sbor.rab.  
po ikht. i gidrobiol no.2;91-115 '59. (MIRA 12;11)  
(Ili Delta--Fresh-water fauna)  
(Ili Delta--Fresh-water flora)

GORYUNOVA, A.I.

Reproduction of the goldfish *Carassius auratus* L. Vop. ikht.  
no.15:106-110 '60. (MIRA 13:9)

1. Institut zoologii Akademii nauk Kazakhskoy SSR.  
(Kustanay Province--Carp) (Reproduction)

GORYUNOVA, A.I.

Scale deformations in the goldfish *Carassius auratus* L. Vop. ikht.  
1 no. 1:52-58 '61. (MIRA 14:5)

1. Nauchno-issledovatel'skiy institut vodnogo khozyaystva Kazakhskoy  
Akademii sel'skokhozyaystvennykh nauk.  
(Boshchakol', Lake-Carp) (Scales (Fishes))

GORYUNOVA, A.I.

Color of peritoneum as a taxonomic character in *Carassius* species.  
Dokl. AN SSSR 136 no.1:245-246 Ja '61. (MIRA 14:5)

1. Nauchno-issledovatel'skiy institut vodnogo khozyaystva Akademii  
sel'skokhozyaystvennykh nauk KazSSR. Predstavлено akademikom Ye. N.  
Pavlovskim.  
(Kustanay Province—Carp) (Peritoneum)

GORYUNOVA, A.I.

Periodical changes in lake and river ichthyofauna of the Virgin Territory. Vop.ikht. 2 no.4:577-580 '62. (MIRA 16:2)

1. Nauchno-issledovatel'skiy institut vodnogo khozyaystva Ministerstva sel'skogo khozyaystva Kazakhskoy SSR, Alma-Ata. (Virgin Territory—Fishes)

L 6509-66 EWT(1)/EWT(m)/T/EWP(t)/EWP(b)/EWA(c) IJP(c) JD/GG  
ACCESSION NR: AP5019425 UR/0020/65/163/003/0606/0608

AUTHOR: Belle, M. L.; Valov, Yu. A.; Goryunova, A. N.; Zlatkin, L. B.; Imenkov, A.

TITLE: Optical and photoelectric properties of single-crystal ZnSIP<sub>2</sub>

SOURCE: AN SSSR. Doklady, v. 163, no. 3, 1965, 606-608

TOPIC TAGS: optical property, photoelectric property, zinc compound optic material, 21  
forbidden band, light polarization, absorption edge, temperature dependence 25

ABSTRACT: In view of the lack of published data on this compound, the authors have studied the photoelectric and optical properties of n-type single crystals obtained from the gas phase by the method of gas-transport reactions. The spectral sensitivity of the photoconductivity was measured at 77 and 300K using a setup comprising a tungsten incandescent lamp, a light interrupter, a monochromator (IKS-21), amplifier (V2-5), synchronous detector, and electronic potentiometer (EPP-09). The absorption spectrum was measured with the spectrograph and a camera at 300, 77, and 4.2K. In addition, the authors investigated the influence of polarization of the incident light on both the optical and photoelectrical properties. Photoconductivity was observed at incident photon energies 0.5-2.5 ev. At 300K the photoconductivity has a highly peaked maximum at 2.14 ev, and also maxima at 0.8 and 1.0

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L 6509-66  
ACCESSION NR: AP5019125

ev, attributed to impurities. At 77K the maxima shift to 2.19, 1.04, and 0.84 respectively. The spectral photoconductivity curve exhibited also some kinks due to transitions of the electrons from the valence to the conduction band. Polarization began to affect the photoconductivity only above 2 ev, when the photoconductivity became highly sensitive to the direction of the electric vector. This may be due to anisotropy of the crystal. Not all crystals showed a sharp absorption edge, a fact attributed to the number of crystal defects. Where a sharp absorption edge was observed, it showed a dependence on the temperature and on the polarization. The maxima of the photoconductivity and the start of the strong optical absorption were very close to each other, and the sharpness of the absorption edge suggests the presence of direct interband transitions in  $ZnSiP_2$ . The forbidden band is estimated at 2.13 ev at 300K and between 2.2 and 2.25 ev at 77K. Two absorption bands are observed at 2.23 and 2.27 ev at 77 and 4.2K, and their origin is not clear. This report was presented by L. A. Artsimovich. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: Fiziko-tehnicheskiy institut im. A. F. Ioffe Akademii nauk SSSR  
(Physicotechnical Institute, Academy of Sciences SSSR) 44,55

SUBMITTED: 17 Nov 64

ENCL: 00

SUB CODE: OP, 88

NR REF Sov: 002

OTHER: 001

Card 2/2

GORYUNOVA, F.A.

~~The optimal acidity of granulated superphosphate for rye,  
wheat, and beets. Uch. zap. Mosk. un. no.186:39-46 '56.~~

(MIRA 9:12)

(Phosphates) (Field crops) (Plants--Effect of acids on)

LOPATIN, B.S., dotsent; GORYUNOVA, G.N.

Benign tumor of the main bronchus in a nine-year girl.  
Zhur.ush., nos. i gorl.bol. 23 no.3:76-77 My-Je'63.

(MIRA 16:7)

1. Iz kafedry bolezney ukha, gorla i nosa (ispolnyayushchiy  
obyazannosti zaveduyushchego-dotsent B.S.Lopatin) i kafedry  
propedevtiki i fakul'tetskoy pediatrii (zav.-dotsent O.M.Lago)  
Ivanovskogo gosudarstvennogo meditsinskogo instituta.  
(BRONCHI—TUMORS)

GORYUNOVA, G.N., vrach; KOLESNICHENKO, V.I., vrach

Gargoylism in a 3-year-old boy. Sbor. nauch. trud. Ivan. gos.  
med. inst. no. 28:210-212 '63.  
(MIRA 19:1)

1. Iz kafedry fakul'tetskoy pediatrii (zav. kafedroy - dotsent  
O.M. Lago) Ivanovskogo gosudarstvennogo meditsinskogo instituta  
(rektor - dotsent Ya.M. Romanov).

ACC-NR: AP6030610

(A, N)

SOURCE CODE: UR/0413/66/000/016/0101/0101

INVENTOR: Goryunova, I. A.; Baranov, B. V.; Prochukhan, V. D.

ORG: none

TITLE: A method of growing boron-phosphide single crystals. Class 40, No. 185087  
[announced by the Physicotechnical Institute im. A. F. Ioffe (Fiziko-tehnicheskiy  
institut)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966, 101

TOPIC TAGS: single crystal growing, boron, phosphide, single crystal, boron phosphide  
crystal growingABSTRACT: This Author Certificate introduces a method of growing boron-phosphide  
single crystals. Growing seeds at lowered temperature of the melt is combined with  
growing single crystals from the seeds at a temperature gradient in the melt. In  
order to obtain single crystals large enough for practical use, the crystals are  
grown in a BP-Cu<sub>3</sub>P-system melt. [WW]

SUB CODE: 11/ SUBM DATE: 08Mar65/ ATD PRESS: 5076

Card 1/1 MT

UDC: 546.181.1

S/191/62/000/003/008/C10  
B101/B147

AUTHORS: Saldadze, K. M., Peremyslova, Ye. S., Fedotova, Ye. N.,  
Gorvunova, L. D.

TITLE: Methods of purifying commercial ionites

PERIODICAL: Plasticheskiye massy, no 3, 1962, 51-54

TEXT: The authors developed several methods of removing Fe and low-molecular organic substances from KY-2 (KU-2) cationite, and AB-17 (AV-17) (containing 16% divinylbenzene) and AH-18 (AN-18) anionites. Mixing the purifying liquid and ionite in a separating funnel proved to be less economical than filtering the purifying liquid upwards through the ionite (10 ml/min). The best method for KU-2 was: swelling in a saturated NaCl solution (0.5 l per 100 g KU-2), washing with 1 l H<sub>2</sub>O, treatment with 2% NaOH (3.6 l, 6.0 hrs), washing (1.8 l H<sub>2</sub>O, 3.0 hrs), treatment with 5% HCl (5.4 l, 9.0 hrs), washing (1.2 l H<sub>2</sub>O, 2.0 hrs). For 100 g AV-17: swelling in 0.5 l of saturated NaCl solution, washing with 1.0 l H<sub>2</sub>O, treatment with 5% HCl (13.8 l, 23.0 hrs), washing (4.2 l H<sub>2</sub>O, 7.0 hrs),

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S/191/62/000/003/008/010  
B101/B147

Methods of purifying commercial ...

treatment with 2% NaOH (12.0 l, 20.0 hrs), washing (12.0 l H<sub>2</sub>O, 20 hrs). For 100 g AN-18: swelling in 5% HCl (0.5 l), treatment with 5% HCl (6.0 l, 10.0 hrs), washing (6.0 l H<sub>2</sub>O, 10.0 hrs), treatment with 2% NaOH (15.0 l, 25 hrs), washing (16.2 l H<sub>2</sub>O, 27.0 hrs). The chemical stability of ionites was determined by measuring the content of oxidizable substances in 100 ml of distilled water which had been in contact with the ionite for 24 hrs. The values (mg O<sub>2</sub>/g ionite) before and after purification were as follows: for KU-2 1.91, and 0.177, respectively; for AV-17 1.92 and 0.06, respectively; for AN-18 0.64 and 0.19, respectively. There are 4 tables and 9 references: 6 Soviet and 3 non-Soviet. The three references to English-language publications read as follows: H. L. Segal, H. Hodge, I. S. Watson, W. T. Merle, *Gastroenterology*, 4, 484 (1945); A. C. Müller, *Ind. Eng. Chem.*, no. 10, 1254 (1959); J. Thompson, A. G. Reents, *Ind. Eng. Chem.*, no. 10, 1259 (1959). *✓*

Card 2/2

DENISOV, Igor' Sergeyevich; PROSYANIK, G.V., nauchn. red.;  
GORYUNOVA, L.K., red.; PERSON, M.N., tekhn. red.

[Assembly of foundry molds] Sborka liteinykh form. Mo-  
skva, Proftekhizdat, 1963. 263 p. (MIRA 16:10)  
(Foundries--Equipment and supplies)

AZAROV, Anatoliy Semenovich; MALOV, A.N., nauchnyy red.; GORYUNOVA,  
L.K., red.; TOKER, A.M., tekhn. red.

[Modernization and automation of lathes] Modernizatsiia i avto-  
matizatsiia tokarnykh stankov. Moskva, Proftekhnizdat, 1962.  
144 p. (MIRA 16:2)  
(Automation) (Lathes—Technological innovations)

GRITSKEVICH, Anatoliy Georgiyevich; SEMENKO, V.P., redaktor; GORYUNOVA,  
L.K., redaktor izdatel'stva; BACHURINA, A.M., tekhnicheskiy redaktor

[Skidding tree-length logs on the Omutninsk logging camp] Vyvozka  
lesa khlystami v Omutninskem lespromkhoze. Moskva, Goslesbumizdat,  
1956. 31 p.  
(MIRA 10:4)  
(Omutninsk District, Kirov Province-- Lumbering)

CHIKOV, Yakov Ivanovich; PIIR, Aleksandr Ivanovich; KARIVASHKIN, S.I.,  
redaktor; GORYUNOVA, L.K., redaktor; SHITS, V.P., tekhnicheskij  
redaktor [redacted]

[Trucking of rubber on interchangeable trailers] Avtomobil'naja  
vyvozka lepca na vymenjivannyh vritsepakh. Moscow: Gosiesbumizdat, 1956.  
49 p. (MLR: 9:5)  
(Automobiles. Transportation) (Rubber. Transportation)

SAZHIN, Stepan Mikitich; KERSAYA, Ye.V., redaktor; GORYUNOVA, L.I.,  
redaktor izdatel'stva; SHITS, V.P., tekhnicheskiy redaktor

[Organization of preparatory work in the cutting area] Organizatsiya  
podgotovitel'nykh rabot na lesosake. Moskva, Goslesbumizdat, 1956.  
63 p. (MIRA 9:?)  
(Lumbering)

KOLLONTAY, M.V. [translator]; ARNSHTYN, G.E., redaktor; GORYUNOVA, L.K.,  
redaktor izdatel'stva; SHITS, V.P., tekhnicheskiy redaktor

[Timber floating in the Scandinavian countries; a collection of  
translations from the Swedish] Lesosplav v Skandinavskikh stranakh;  
sbornik perevodnykh statei. Perevod so shvedskogo M.V.Kollontai.  
Moskva, Goslesbumizdat, 1956. 63 p. (MIRA 10:3)  
(Lumber--Transportation)

SHESTOPALOV, Konstantin Sergayevich; PUSHKAREV, Boris Aleksandrovich;  
FLEROV, D.I., ofitsial'nyy retsenzent; RUSHEVNIKOV, N.S., ofitsial'nyy  
retsenzent; DOMBROVSKIY, Yu.V., redaktor; GORYUNOVA, L.I., redaktor  
izdatel'stva; SHITS, V.P., tekhnicheskiy redaktor

[Machine repairing at lumbering enterprises] Slesarno-remontnoe delo  
na lesosagotovitel'nykh predpriyatiakh. Moskva, Goslesbumiindat, 1956.  
199 p.

(Machinery--Repairing)

SOROKIN, Vasiliy Kuz'mich; BOLOTSKAYA, Ye.I., redaktor; GORYUNOVA, L.K.,  
redaktor izdatel'stva; KARASIK, N.P., tekhnicheskiy redaktor

[Practice of the Lezha lumbering comp] Obyt raboty Lezhskogo  
lespromkhosa. Moskva, Goslesbumizdat, 1957. 36 p. (MLRA 10:10)  
(Vologda Province--Lumbering)

*GORYUMOVA, L.K.*

AFONIN, Petr Tikhonovich; ANDRIAMOV, Aleksandr Pavlovich; NIKITIN, L.I.,  
redaktor: GORYUMOVA, L.K. redaktor izdatel'stva; KARASIK, N.P.,  
tekhnicheskiy redaktor

[Repair of narrow-gage locomotives in the Sosloniger lumber industry]  
Remont uskokoleinykh parovozov v Soslongerskom lespromkhose. Moskva,  
Gos. sel'zheinodat, 1957. 50 p. (MLRA 10:9)  
(Locomotives--Maintenance and repair)

MAFFADOV, Sergey Ivanovich; GOMIK, A.A., retsenzent; MEVSKIY, Ye.G., retsenzent;  
SHCHERBINSKIY, Ya.N., redaktor; ~~ZORYUMOVA, L.K.~~, redaktor izdatel'-  
stva; KARASIK, N.P., tekhnicheskiy redaktor

[Tackle for floating lumber] Taksileshnoe khoziaistvo na lesosoplave.  
Moskva, Goslesbunizdat, 1957. 213 p. (MIRA 10:10)  
(Lumber--Transportation)

TEAPEZNIKOV, Nikolay Ivanovich; RABIMOV, V.Z., nauchnyy red.; GORYUNOVA,  
L.K., red.; DORODNOVA, L.A., tekhn.red.

[Assembly of pipelines] Sbornik truboprovodov. Moskva, Vses.  
uchebno-pedagog.izd-vo Proftekhsdat, 1960. 194 p.  
(MIRA 14:1)  
(Pipelines)

SLEPININ, Vladimir Aleksandrovich; OBUKHADKO, Boris Iosifovich; LEVINSON,  
Semen Yakovlevich [deceased]; PASTUKHOV, V.M., nauchn. red.; GORYU-  
NOVA, L.K., red.; DORODNOVA, L.A., tekhn. red.

[Collection of problems and laboratory exercises for studying  
machining on lathes] Sbornik zadani i laboratornykh rabot po  
tekhnicheskym delu. Izd.3., perer. i dop. Moskva, Vses. uchebno-  
pedagog. izd-vo Proftekhizdat, 1960. 226 p. (MIRA 14:9)  
(Turning—Study and teaching)

BEINY, Mikhail Yevseyevich; MOROZOV, Ye.P., nauchnyy red.; GORYUNOVA, L.K.,  
red.; TOKER, A.M., tekhn. red.

[Some problems in connection with advanced technological processes  
in the manufacture of machinery] Nekotorye voprosy progressivnoi  
tekhnologii v mashinostroenii. Moskva, Vses. uchebno-pedagog.  
izd-vo Proftekhizdat, 1961. 117 p. (MIRA 14:9)  
(Machinery industry—Technological innovations)

TSIGEL'SKIY, Vladimir Leopol'dovich; MEL'BARD, S.N., nauchnyy red.;  
GORYUNOVA, L.K., red.; TOKER, A.M., tekhn.red.; BARANOVA, N.N.,  
tekhn.red.

[Mechanization of arc welding] Mekhanizatsiya dugovoi svarki.  
Moskva, Vses.uchebno-pedagog.izd-vo Proftekhizdat, 1961.  
142 p. (MIRA 15:2)  
(Electric welding--Equipment and supplies)

BRANDELIS, Aleksandr Moiseyevich; USTINOV, N.V., nauchnyy red.;  
MIKHAYLOV, A.I., nauchnyy red.; GORYUNOVA, L.K., red.; TOKER,  
A.N., tekhn. red.

[Operator of automatic lathes] Avtomatchik na tokarnykh avto-  
matakh. Moskva, Vses.uchebno-pedagog. izd-vo Proftekhnizdat,  
1961. 230 p. (MIRA 15:4)  
(Lathes) (Automatic control)

KOGAN, Grigoriy Yefimovich; GORIUNOVA, L.K., red.; KOZLOVSKAYA, M.D.,  
tekhn. red.; NESMYSLOVA, L.M., tekhn. red.

[Manual arc welding of metals] Ruchanaia dugovaia svarka metallov.  
Moskva, Vses. uchebno-pedagog. izd-vo Proftekhizdat, 1961. 383 p.  
(MIRA 15:1)

(Electric welding)

OBSHADKO, Boris Iosifovich; PASTUKHOV, V.M., nauchnyy red.; BOBROVA, T.L., red.; GORYUNOVA, L.K., red.; NESMYSLOVA, L.M., tekhn. red.

[Methodology of teaching machining on lathes] Metodika pre-podavaniia tokarnogo dela. Izd.3., perer. i dop. Moskva, Proftekhizdat, 1963. 281 p. (MIRA 16:4)  
(Turning)

GLIZMANENKO, Dmitriy L'vovich; TSEGEL'SKIY, V.L., nauchnyy red.;  
GORYUNOVA, L.K., red.; DORODNOVA, L.A., tekhn. red.

[Welding and cutting of metals] Svarka i rezka metallov. Izd.5.,  
perer. Moskva, Proftekhizdat, 1962. 447 p. (MIRA 16:1)  
(Electric welding) (Electric metal cutting)

FRENKEL', Semen Shul'yevich; ZHIDELEV, M.A., nauchn. red.; GORYUNOVA,  
L.K., red.; BARANOVA, N.N., tekhn. red.

[Teaching the special technology of milling] Prepodavanie  
spetsial'noi tekhnologii frezernogo dela. Moskva, Proftekhn-  
izdat, 1963. 166 p. (MIRA 17:4)

KAKHOVSKIY, Nikolay Ivanovich, kand. tekhn. nauk; GOTAL'SKIY,  
Yuzef Nikolayevich, kand. tekhn. nauk; PATON, Vladimir  
Yevgen'evich, kand. tekhn. nauk; TRUSHCHENKO, Anton  
Antonovich, inzh.; ZVEGINTSEVA, K.V., nauchn. red.;  
GORYUNOVA, L.K., red.; NESNYSLOVA, L.M., tekhn.red.

[Technology of mechanized arc and electric slag welding]  
Tekhnologiya mekhanizirovannoи dugovoi i elektroshlakovoи  
svarki. [By] N.I.Kakhovskii i dr. Moskva, Proftekhizdat,  
1963. 383 p. (MIRA 17:1)  
(Electric welding—Equipment and supplies)

FRUMIN, Isidor Il'ich; YUZVENKO, Yuryi Arsen'yevich;  
LEYNACHUK, Yevgeniy Ivanovich; CHEKANOV, A.A.,  
nauchn. red.; GORYUNOVA, L.K., red.; IONOV, V.N., red.

[Technology of mechanized metal deposition] Tekhnolo-  
gia mekhanizirovannoi naplavki. Moskva, Vysshiaia  
shkola, 1964. 303 p. (MIRA 18:1)

MUKIN, Isaak Moiseyevich; GORYUNOVA, L.K., red.

[Handbook for the young lathe operator] Spravochnik mo-  
lodogo tokaria. Moskva, Vysshiaia shkola, 1965. 400 p.  
(MIRA 18:8)

GORYUNOVA, L. N.

Dissertation: The Biological Basis for the Possibility of Transplanting Full-Grown Trees in the Murmanskaya Oblast." Cand Biol Sci, Inst of Botany imeni V. L. Komarov, Acad Sci USSR, Moscow, Oct-Dec 53. (Vestnik Akademii Nauk, Moscow, Jun 54)

SO: SUM 318, 23 Dec 1954

~~GORYUNOVA, L. M.~~

Transplanting mature trees in Murmansk Province. Rast.Krain.  
(MLRA 10:2)  
Sev.SSSR i ee osv. no.1:70-80 '56.

1. Polyarnoal'piyskiy botanicheskiy sad Kol'skogo filiala  
im. S.M. Kirova AN SSSR.  
(Murmansk Province--Tree planting)

GORYUNOVA, L.N.

Transplanting mature Siberian pine (*Pinus sibirica* (Rupr.)  
Mayr.) to the Kola Peninsula. Izv. Kar. i Kol'. fil. AN SSSR no. 3:  
94-97 '59. (MIRA 13:4)

1. Polyarno-al'piyskiy botanicheskiy sad Kol'skogo filiala AN  
SSSR. (Kola Peninsula--Pine)

GORYUNOVA, L.N.

Clone of the monoecious aspen *Populus tremula* L. on the Kola Peninsula.  
Bot. zhur. 46 no. 5:705-707 My '61. (MIRA 14:7)

1. Polyarno-al'piyskiy botanicheskiy sad Kol'skogo filiala imeni  
S.M. Kirova AN SSSR, Kirovsk Murmanskoj oblasti.  
(Kola Peninsula—Aspen)

SHTENBERG, A.I.; KUSEVITSKIY, I.A.; Prinimala uchastiye GORYUNOVA,  
I.N. ordinator

Effect of predominant carbohydrate nutrition in iodine  
deficiency associated with some functional stresses on the  
development of experimental goiter. Vop. pit. 23 no.1:43-51  
(MIRA 17:3)  
Ja-F '64.

1. Iz kafedry gigiyeny pitaniya Sverdlovskogo meditsinskogo  
instituta.

GORYUNOVA, M.G.; MINAYEVA, R.F.; IVANOV, N.N.

Selecting the new type of oiling preparations for rayon processing.  
Khim.volok. no.2:53-54 '63. (MIRA 16:5)

1. Kalininskiy kombinat (for Goryunova, Minayeva). 2. Vsesoyuznyy  
nauchno-issledovatel'skiy institut iskusstvennogo volokna (for  
Ivanov).  
(Rayon) (Textile finishing)

UGAY, Yakov Aleksandrovich; ABRIKOSOV, N.Kh., doktor khim. nauk,  
prof., retsenzent; GORYUNOVA, M.I., doktor khim. nauk,  
prof., retsenzent; FEDOROVA, T.P., red.

[Introduction to the chemistry of semiconductors] Vvedenie  
v khimiiu poluprovodnikov. Moskva, Vysshiaia shkola, 1965.  
(MIRA 18:5)  
333 p.

1. Kafedra poluprovodnikovykh materialov Leningradskogo  
politekhnicheskogo instituta im. M.I.Kalinina (for  
Goryunova).

GORYUNOVA, M. P.

"Regularities in the Direct Expansion and Metastasis of Cancer of the Mammary Glands, Stomach and Lungs and Their Clinical Significance." Sub 23 Jan 51, Central Inst for the Advanced Training of Physicians.

Dissertations presented for science and engineering degrees in Moscow during 1951.

50 : Sum. No. 480, 9 May 55

*GORYUNOVA, M.P.*

GORYUNOVA, M.P., kandidat meditsinskikh nauk

Practical deductions from the investigation of orders of direct dissemination and of metastatic distribution of gastric cancer.  
(MIRA 10:8)  
Trudy AMN SSSR 21 no.4:12-16 '52.

1. Iz patologoanatomiceskoy laboratorii i onkologicheskogo  
otdeleniya Sverdlovskogo nauchno-issledovatel'skogo instituta  
fizicheskikh metodov lecheniya Ministerstva zdravookhraneniya RSFSR  
(nauchnyy rukovoditel' doktor meditsinskikh nauk prof. L.M.Ratner)  
(STOMACH, neoplasms,  
direct dissemination & metastases)

GORYUNOVA, N. A.

Nov 48

USSR/Physics  
Diffusion  
Chemistry -- Diffusion, or Gases

"Determination of the Diffusion Coefficients in  
Vapors Containing Cyclohexane, Chloroform and  
Acetone," N. A. Goryunova, Ye. V. Kuvshinskii  
Leningrad Physicotech Inst, Acad Sci USSR, 42 pp

"Zhur Tekh Fiz" Vol VIII, No 11 № 1421-5

Treats subject under: (1) control experiment for  
determining constant of the equipment, and (2)  
determination of diffusion coefficients of  
cyclohexane, chloroform and acetone. Authors  
determined diffusion coefficient of above-mentioned  
18/49T103

USSR/Physics (Contd)

Nov 48

substances at temperatures of 20-45° C with the aid  
of Stephen's second method. Submitted 13 May 48.

18/49T103

CA

The  $\beta$   $\leftrightarrow$   $\alpha$  transition of gray tin and its isomorphism. N. A. Goryainova (Leningrad Phys. Tech. Inst.). *Dobladý* *Actas. Acad. N. S. S. R.* 75, 51-4 (1960).—Seven substances, Ge, InSb, CdTe,  $\gamma$ -AgI, HgTe, ZnTe, and CuI, have at. radii differing by no more than 15% from that of  $\alpha$ -Sn (gray tin), and 4 of them (InSb, CdTe, AgI, and HgTe) have lattice parameters differing by not over 5% from that of  $\alpha$ -Sn. Consequently, these substances might (to its isomorphism with  $\alpha$ -Sn) by the rules of Goldschmidt (Naukova, *et al.*, *Osnovy Kristallografi* 1948, 221) and of Grimm (C.A. 16, 3777), resp. This was tested by the effect of particles of these substances, rubbed onto the surface of  $\beta$ -Sn, to accelerate its transformation into  $\alpha$ -Sn on cooling to  $-20^\circ$ . Under these conditions, only samples inoculated with either  $\alpha$ -Sn, InSb, or CdTe went over into  $\alpha$ -Sn within 3 hrs.; samples not inoculated, or inoculated with any of the remaining substances, showed no change on further 48-hr. heating at  $-20^\circ$ , followed by immersion in liquid air, and remained 48 hrs. standing at  $-20^\circ$ . The 3 compds. that proved effective to the same degree as  $\alpha$ -Sn itself differ from it in their at. radii by not more than 6%, and in their lattice parameters by not more than 0.2%. Consequently, isomorphism of covalent solids is subject to more stringent conditions than those laid down by the rules of Goldschmidt and of Grimm for ionic-polar solids. N. T.

1981

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mechanical properties of gray tin. A. I. Blum and N. A. Goryainova (Leningrad Phys. Tech. Inst.). *Doklady Akad. Nauk S.S.R.* 75, 367-70 (1960).—Measurements were made on  $18 \times 10 \times 5.5$ -mm. samples made by "self-pressing," in carbon molds, of tin partly converted into the gray modification; the expansion accompanying the completion of the conversion on cooling ensures sufficiently close packing and compression of the  $\rho$ -Sn. Comparisons with white  $\rho$ -Sn are based on the assumption that the sizes of the crystallites undergo no change when the sample of  $\rho$ -Sn is transformed into  $\rho$ -Sn at  $100^\circ$ ; the fact that the elec. resistance of the sample converted into the white modification is found not very different from the elec. resistance of massive white tin, is taken to indicate that, with the gray modification, too, the results are not vitiated by transition resistance between the grains. Results of measurements on  $\alpha$ -Sn, at  $+20$  and at  $-195^\circ$ , are: elec. resist.  $\sigma = 28$  and  $16.3 \text{ ohm}^{-1} \text{ cm.}^{-1}$ ; Hall const.  $R = -3.2$  and  $-120 \text{ c.g.s. un.}$ ; concn. of current carriers  $n = 7.6$  and  $2.3 \times 10^{10}$  and  $6.5 \times 10^{10} \text{ cm.}^{-3}$ ; mobility  $\mu = 7.6$  and  $164 \text{ cm.}^2/\text{v. sec.}$ ; thermoelec. power, against Pb, at  $+10$  and at  $-140^\circ$ ,  $\alpha = -10$  and  $+4.6$  microvolts/degree. For white  $\rho$ -Sn,  $\sigma = 3.8 \times 10^3$  and  $1 \times 10^3$ ;  $R = < 3.7 \times 10^{-1}$ ;  $\mu = +0.2$ . The magnitude of  $\sigma$  of  $\alpha$ -Sn is, roughly,  $1/\mu$  that of  $\rho$ -Sn, and its variation with the temp. is in the direction characteristic of semiconductors. The temp. variation of  $\sigma$  shows a complex behavior; between  $+20$  and  $-20^\circ$   $\sigma$  is neg., whereas between  $-20$  and  $-140^\circ$  it is pos., and passes through a max. at about  $-80^\circ$ . At that temp.,  $R$  was found much smaller than at either  $+20$  or  $-195^\circ$ . These facts are evidence of the presence of carriers of both signs in  $\alpha$ -Sn. N. Thom

1957

GORYUNOVA, N. A.

JUL 51

USSR/Electricity - Conductivity  
Properties of Thin Layers Containing

"Electric Properties of Thin Layers Containing  
Grey Tin," N. A. Goryunova, I. D. Konozenko,  
A. P. Obukhov, Leningrad Physicotech Inst,  
Acad Sci USSR

"Zhur Tekh Fiz" Vol XXI, No 7, 814-817

"Zhur Tekh Fiz" Vol XXI, No 7, 814-817  
Method of obtaining thin layers of tin on  
cooled lining with priming of mixt of 2  
cooled layers, consisting of very dif-  
erent layers of white tin of same thick-  
ness. Their sp resistance fluctuates within  
limits 10<sup>3</sup> - 10<sup>4</sup> Ohm cm. Such layers have  
neg thermal coeff of resistance  
5% per 1°C. Submitted 10 Sep 50.

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JUL 51

USSR/Electricity - Conductivity  
(Contd)

"Zhur Tekh Fiz" Vol XXI, No 7, 814-817  
Method of obtaining thin layers of tin on  
cooled lining with priming of mixt of 2  
cooled layers, consisting of very dif-  
erent layers of white tin of same thick-  
ness. Their sp resistance fluctuates within  
limits 10<sup>3</sup> - 10<sup>4</sup> Ohm cm. Such layers have  
neg thermal coeff of resistance  
5% per 1°C. Submitted 10 Sep 50.

189F37

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JUL 51

GORYUNOVA, N. A.

USSR/Physics - Semiconductors, Tin

Mar/Apr 52

"Gray Tin - Electron Semiconductor," N.A. Goryunova,  
A.P. Obukhov

"Dok Ak Nauk, Ser Fiz" Vol XVI, No 2, p 154

Abbreviated text of report published in "Dok Ak Nauk  
SSSR" Vol LXXV, No 1, 3, 1950; "Zhur Tekh Fiz" Vol XXI,  
No 7, 1951. Samples of gray tin were tested for  
cond, Hall's const and thermoelectromotive force.  
Alpha-Sn proved to be a semiconductor, in agreement  
with A. I. Ioffe's theoretical conceptions, with

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predominating metallic properties. Stable films  
contg alpha-Sn of high thermal resistance were ob-  
tained by sublimation in vacuum.

220787

Chemical Abstr.

Vol. 48

Apr. 10, 1956

Electronic Phenomena and Spectra

Oxidation of aqueous solutions of sodium sulfite with positive gaseous ions of hydrogen, helium, and oxygen.

N. A. Gulyaeva and V. I. Guly (Molnyn Tekhnol. Inst.)

Kharkov, U.S.S.R. Zh. Tekhn. Kibernetika, 23, 1263-1267 (1955).

Ag.  $\text{Na}_2\text{SO}_3$  (0.6-1.6%) is bombarded with positively charged gaseous ions of  $\text{H}_2$ ,  $\text{He}$ , and  $\text{O}_2$ . The spark length in the gas space above the soln. is 1.5-4 mm., and the current is maintained at 5 mA. Oxidation to sulfate is more rapid than by conventional methods of electrolysis.  $\text{H}$  is evolved from the soln. when  $\text{H}_2$  and  $\text{He}$  are the charged particles. When  $\text{O}_2$  is used, it is absorbed directly. C. H. P.

*Marxineva 11*

*USSR*

*The isomorphism of compounds with a covalent bond.*  
N. A. Goryunova and N. N. Fedorova (Leningrad Phys.-  
Chem. Inst., Acad. Sci. U.S.S.R.). Doklady Akad. Nauk  
S.S.R. 90, 1039-41 (1953).—Data are presented on the  
isomorphism of binary compds., whose bonds differ in their  
degree of covalency in the synthesis of ternary (pseudo-  
binary) compds., and on the ability of ternary compds. to  
bring about a  $\beta$ - $\alpha$  transition in Sn. The exptl. results  
showed that the less-covalent compds. form solid solns.  
(CdTe and ZnTe, CdTe and HgTe) but the more-covalent  
compds. do not (InSb, InAs). The solid solns.  $m$ CdTe-  
 $n$ ZnTe,  $m$ CdTe- $n$ HgTe are isomorphous with gray Sn.

J. Rovtar Leach

*chan 3*

*PM*

Академия Наук СССР. Вопросы Теории и Изучения Полупроводников и Проводимости Твердых Материалов. (Problems in the Theory and Investigation of Semiconductors and Processes of Semiconductors Manufacturing.) 1955. - Pp. 96. Illustrated. 1955. Moscow. Izdatelstvo Akademii Nauk S.S.R. (3 vol.)

[Contents: A. F. Ioffe, "Some Problems in Semiconductor Physics"; A. R. Regel, "The Relation Between Electron Conductivity of Liquids and Their Structure"; P. A. Gege, "Solid Solutes in Liquids".

APPROVED FOR RELEASE: 03/13/2001

CIA-RDP86-00513R000516410012-1"

*Goryunova, N. A.*  
USSR/Physics - Electrical properties

FD-3104

Card 1/2      Pub. 153 - 3/24

Author : Kolomiyets, B. T.; Goryunova, N. A.Title : Properties and structure of ternary semiconductor systems.  
I. Electrical properties and structure of certain materials in  
the system Tl-Sb-Se

Periodical : Zhur. tekhn. fiz., 25, No 6 (June), 1955, 984-994

Abstract : The authors present first results of an investigation of the  
structure and electrical properties of certain materials in the  
system Tl-Sb-Se. They present preliminary data on a new group of  
amorphous substances of the type  $Tl_2Se \cdot As_2(SeTe)_3$ , which will be  
discussed in greater detail soon. They conclude the existence of  
a chemical compound of composition  $Tl_2Sb_2Se_4$  in the pseudobinary  
section  $mTl_2Se \cdot nSb_2Se_3$  of ternary system Tl-Sb-Se; the given com-  
pound in its electrical properties is a typical hole semiconductor  
with conductivity at room temperature of the order  $10^{-4}/\text{ohm} \cdot \text{cm}$  and  
photoconductivity with maximum at wavelength 1.4 micron. By varying  
the composition of the components in the series  $mTl_2Se \cdot nSb_2Se_3$   
they can obtain an entire gamma of complex semiconductor material  
with conductivity lying in the limits of six orders of magnitude  
and photoconductivity with spectral distribution smoothly varying

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FD-3104

in rather wide limits with maxima from 0.8 to 1.4 micron. Substitution in the studied system of antimony by arsenic gives a new group of semiconductor materials differing by an amorphous structure; introduction of tellurium into the given compounds increases the conductivity up to  $10^{-3}/\text{ohm}\cdot\text{cm}$ , without change of the amorphous structure. The authors claim that their investigation of the system  $m\text{Tl}_2\text{Se}\cdot n\text{Sb}_2\text{Se}_3$  along with the preliminary data on the properties of  $\text{Tl}_2\text{Se}\cdot \text{As}_2(\text{Se},\text{Te})_3$  promises new semiconductor materials with qualitatively new properties. The authors acknowledge the assistance of Ye. P. Yepishkin in the synthesis of the compounds and of S. V. Slobodchikov, graduate student of Leningrad State University, in the measurement of conductivity and photoconductivity in system  $m\text{Tl}_2\text{Se}\cdot n\text{Sb}_2\text{Se}_3$ . They also thank Professor Z. G. Pinsker for information on structure of new compounds, N. N. Fedorova for study of structure of new substances (particularly amorphous semiconductors), and Professor D. N. Nasledov for advice. Two references.

Institution :

Submitted : January 28, 1955

C. J. A. A. P.

FD-3216

USSR/Physics - Semiconductors

Card 1/1 Pub. 153-25/28

Authors : Goryunova N. A. and Fedorova N. N.

Title : Isomorphism of compounds of the type A<sub>III</sub>B<sub>V</sub>

Periodical : Zhur. Tekh. Fiz., 25, No 7, 1339-1341, 1955

Abstract : The formation of solid substitution solutions of binary compound of the zinc blende type were studied by x-ray analysis. Comparison with results obtained by authors in their previous works (DAN SSSR, 90, 6,1039 (1953); Goryunova N. A.: Materials of conference on semiconductors in the Institute of Metallurgy Acad. Sci. USSR, 1954) led to conclusions that the chemical bond substantially determines the formation of solid substitution solutions. In the case of a more covalent bond isomorphism does not appear, or is very weak. Indebted to Prof. D. N. Nasledov for discussions. Two aforementioned references.

Institution: ---

Submitted : April 2, 1955

GORYUNOVA, N.A.

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✓ 5886. PHOTOELECTRIC CHARACTERISTICS OF SOME  
COMPOUNDS WITH THE STRUCTURE OF ZINC BLENDE.N.A.Goryunova, V.A.Grigor'eva, B.M.Konovalenko and  
S.M.Ryvkin.

Zh. tekh. Fiz., Vol. 25, No. 10, 1876-82 (1955). In Russian.

All the compounds investigated, viz.  $\text{Ga}_2\text{Se}_3$ ,  $\text{Ga}_2\text{Te}_3$ ,  $\text{Ga}_3\text{Te}_2$ ,  $\text{ZnTe}$ ,  $\text{Ga}_2\text{Te}_4 \cdot 3\text{ZnTe}$ ,  $\text{Ga}_2\text{Te}_3 \cdot 9\text{ZnTe}$ ,  $\beta\text{-Ga}_2\text{S}_3$ ,  $\text{Ga}_2\text{S}_3$ ,  $\text{GaTe}$ , are semiconductors and are photosensitive. On transition from one substance to another of the same structural type the long-wave limit of the photoconductivity shifts in a regular way and, therefore, also the energy interval corresponding to the width of the prohibited zone. The ever more prevalent ionic character of the bond explains the phenomena.

Electrical Research Association

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337.311.33 3417  
Properties and Structures of Ternary Semiconducting Systems: Part 2-Electrical Properties and Structure of Materials of the System comprising Thallium, Antimony and Arsenic Selenides. N. A. Goryainov & B. I. Kabanov. (Zh. Tekh. Fiz. 1955, No. 25, No. 12, pp. 2099-2098.) In continuation of work reported previously (Zh. Tekh. Fiz. 1955, No. 10, pp. 1265-1269) an investigation was made of the variation of the properties of intermediate mixtures at the transition between the crystalline and amorphous compounds. Several melts with gradual replacement of Sb by As were synthesized and numerous experiments carried out.

Gor'yanova, N. A.

"Joint Crystallization of the Hexagonal Sulfides of Cadmium with Zinc Selenide, Indium Arsenide, and Indium Selenide"

ZnSe, InAs, and In<sub>2</sub>Se, prepared from 99.9% Se, and In of >99.9% purity with carefully documented impurities, gave the following data for structural type and lattice parameters (from X-ray): ZnSe, wurtzite,  $a = 5.90$ ; 3ZnSe-CdSe, sphalerite,  $a = 5.45$ ; InAs-CdSe, sphalerite,  $a = 6.04$ ; ZnSe-3CdSe, wurtzite,  $a = 4.23$ ;  $c = 6.69$ ; InAs-CdSe, sphalerite,  $a = 6.04$ , and wurtzite,  $a = 4.24$ ,  $c = 6.00$ ; 3In<sub>2</sub>Se-CdSe, sphalerite + superlattice lines,  $a = 6.814$ ; In<sub>2</sub>Se-CdSe, sphalerite + superlattice lines,  $a = 6.814$ . Full X-ray data and the discussion are appended.—A. F. R.

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Kellang

Goryunova, N. A.

*U* X-ray investigation of the isomorphism of tellurium and zinc compounds. N. A. Goryunova, V. A. Kotovich, and V. A. Frank-Kamenetskii (V. A. Zil'yanov Leningrad State Univ.), *Doklady Akad. Nauk S.S.R.* 103, 683-684 (1955).

The sphalerite structure type is also observed in ZnSe and ZnTe. In the structure of Ga<sub>2</sub>Se<sub>3</sub> and Ga<sub>2</sub>Te<sub>3</sub> the metallic positions of the sphalerite type are only 1/3 occupied. The series Ga<sub>2</sub>X<sub>3</sub>-ZnX (X = Se or Te) are plotted in the ternary system Ga-Zn-X, and mixes were fused in systematically varied ratios of the constituents, in evacuated silica-glass containers. The x-ray data of the alloys are given for the pure compds. and 3 selected stoichiometric ratios. The series Ga<sub>2</sub>Se<sub>3</sub> (with the parameter  $a_0 = 5.430 \pm 0.005$  kX)-ZnSe ( $a_0 = 6.663 \pm 0.001$  kX) is continuous, but the parameters are not strictly linear functions of the chem. compns. The series Ga<sub>2</sub>Te<sub>3</sub> ( $a_0 = 6.297 \pm 0.003$  kX) - ZnTe ( $a_0 = 6.087 \pm 0.003$  kX), however, shows a miscibility gap between Ga<sub>2</sub>Te<sub>3</sub>-ZnTe ( $a_0 = 6.013 \pm 0.003$  kX) and near ZnTe ( $a_0 = 6.075 \pm 0.003$  kX). The binding mechanism may be more ionic in the series of the selenides and more covalent in the tellurides. Goldschmidt has assumed that the specific enrichment of Ga in sphalerite (up to 0.22%) is based on the isomorphism of ZnS and GaAs; the authors are of the opinion that the well-substantiated occurrence of Ga in sphalerite is based on the isomorphism of ZnS and Ga<sub>2</sub>Se<sub>3</sub>.

W. Eitel



GORYUNOVA, N.A.

<sup>7</sup> Spectral distribution of linear photoeffect in sulfide, selenide, and telluride systems. N. A. Goryunova and P. A. Kotlobay. Leningrad 1974.

So with As considerably changed the sensitivity of the semiconductor. The photoelec. properties of the  $\text{Bi}_2\text{S}_3\text{-Sb}_2\text{S}_3$  system depended on the stoichiometric excess of S. With a decrease in its concn. the distribution shifted first towards the long-wave region and then in the direction of the short-wave region. The spectral effect in the presence of large excess of S was the same as for pure S. The spectral sensitivity in the  $\text{Sb}_2\text{Se}\text{-As}_2\text{Se}$  and of  $\text{Tl}_2\text{Se}\text{-As}_2\text{Se}$  systems was shifted towards the long-wave region. The system  $\text{CdSe}\text{-Tl}_2\text{Se}\text{-As}_2\text{Se}$  gave a complex picture of the linear photo effect, indicating a general trend in the shift in the direction of higher wave lengths. The spectral sensitivity of individual components in  $\text{Tl}_2\text{Se}\text{-As}_2\text{Se}\text{-Tl}_2\text{Se}\text{-Sb}_2\text{Se}$  semiconductor was within the limits of the system. In the  $\text{CdTe-ZnTe}$  system the light sensitivity of each component was in the region of shorter wave lengths than for the system itself. Similar behavior was observed with  $\text{CdSe-InSe}$ .

A. P. Kotlobay

Ind 4/88

GORYUNOVA, N. A.

15-57-7-9328

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 7,  
p 86 (USSR)

AUTHORS: Goryunova, N. A., Frank-Kamenetskiy, V. A.

TITLE: The Concept of Isomorphism (O soderzhanii ponyatiya  
izomorfizm)

PERIODICAL: V sb: Kristallografiya, Nr 5, Moscow, Metallurgizdat,  
1956, pp 51-58

ABSTRACT: The authors consider the treatment of the concept of  
isomorphism by different scientists (D. I. Mendeleev,  
E. Mitscherlich, V. M. Goldschmidt, R. Grimm, R. K.  
Evans, and A. F. Wells) and the meaning of this concept  
in the light of new information. Different types of  
isomorphous replacements are examined briefly. Normal  
replacements, which are effected in a framework of a  
monotypic regular system of points, are subdivided  
into simple replacements, isovalent replacements

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The Concept of Isomorphism (Cont.)

(e.g., Ag-Au), and linked heterovalent replacements (e.g.,  $\text{CePO}_4$ - $\text{PbCrO}_4$ ). Complex replacements, effected during transition from one system of regular points to another, are divided into replacement with additions (filling in spaces) or subtractions (e.g., corundum  $\gamma\text{Al}_2\text{O}_3$ -Spinel  $\text{MgAl}_2\text{O}_4$ ) and replacements by substitution of positions. The authors propose that double salts, mixed crystals, and solid solutions be excluded from the classification of isomorphism phenomena. Isostructure is unsuitable as a criterion for proposing the possibility of isomorphism. At the same time, isomorphism requires a definite pattern of structural similarity, which is associated, above all, with preservation of volume ratios. These considerations lead to the following definition: isomorphism is a similarity in relation to volumetric sizes of definite elements of structure, approximating a geometric type of structure and bonding, which makes it possible, under definite chemical conditions, for corresponding structural units (atoms, ions, radicals, molecules) to occupy identical or similar positions in the

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The Concept of Isomorphism (Cont.)

15-57-7-9328

units of a general crystallizing lattice, forming combinations of  
varying composition.

Card 3/3

M. N. Sokolova

GORYUNOVA, N.A. ; KOLOMIYETS, B.T.

New vitreous semiconductors. Izv. AN SSSR. Ser. fiz. 20 no. 12:1496-1500  
D '56. (MIRA 10:3)

1. Leningradskiy fiziko-tehnicheskiy institut Akademii nauk SSSR.  
(Semiconductors)

GORYUNOVA, N. A.

USSR /Physical Chemistry. Crystals.

B-5

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 25950

Author : N.A. Goryunova, B.T. Kolomiyets, A.A. Mal'kova

Title : Properties and Structure of Ternary Semiconductor Systems. III. Conductivity and Photoconductivity in Systems of Thallium, Antimony and Bismuth Sulfides.

Orig Pub : Zh. tekhn. fiziki, 1956, 26, No 8, 1625 - 1633.

Abstract : It was established by the microstructural x-ray diffraction and the thermal analyses that only one chemical compound  $Tl_2S_3Sb_2S_3$  of a narrow homogeneity region existed in the system  $xTl_2S - (1 - x)Sb_2S_3$ . All the alloys of this system are semiconductors of a photoconductivity  $\sigma$ , which does not exceed the  $\sigma$  of the initial binary components in respect of the absolute sensitivity, as well as of the spectral distribution, and of a conductivity  $\sigma$ , which is less than the  $\sigma$  of the initial binary compounds.

Card : 1/2

USSR / Physical Chemistry. Crystals.

B-5

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 25950

Abstract : All the alloys of the system  $x\text{Sb}_2\text{S}_3 \cdot (1 - x)\text{Bi}_2\text{S}_3$  are metallic gray and do not differ from the initial binary components either by the crystallization character (needles), or by the structure. All the alloys are solid replacement solutions with semiconductor properties. The  $\delta$  of some of these alloys is considerably less than that of the initial substances, and their long-wave maximum of the spectral sensitivity is greater. See RZhKhim, 1956, 38869 for Part II.

Card : 2/2

GORYUNOVA, N. A.

SUBJECT USSR / PHYSICS  
AUTHOR GORJUNOVA, N. A., GRIGOR'EVA, V. S.  
TITLE On the Arsenoselenides of Gallium  
PERIODICAL Zurn.techn.fis, 26, fasc. 10, 2157-2161 (1956)  
Issued: 11 / 1956

CARD 1 / 2

PA - 1555

The present work investigates the system  $\text{GaAs} - \text{Ga}_2\text{Se}_3$ . The composition of the 7 alloys investigated are on the line of the pseudobinary section of the system  $\text{Ga}, \text{As}, \text{Se}$ . Investigations were carried out according to the following methods:  
1.) X-ray structure phase analysis carried out by means of a DEBYE-SCHERRER chamber with copper radiation and nickel filter shows a distinctly visible system of lines examined (with the exception of the alloy  $2 \text{ GaAs} \cdot \text{Ga}_2\text{Se}_3$ ); this system of lines is, according to position and intensity, characteristic of the structure of the zinc blende.  
2.) The microstructure analysis of ground sections in all cases showed a marked dendrite structure which is characteristic of solid solutions.  
3.) The thermal analysis of the system carried out by means of the recording pyrometer by N. S. KURNAKOV characterized the system  $\text{GaAs}-\text{Ga}_2\text{Se}_3$  as one of solid solutions.  
4.) Besides, the specific weight of the alloys was examined by the usual pyknometer method.

Discussion of results: A comparison of results obtained by means of the aforementioned methods shows that the investigated system is a number of solid

Zurn.techn.fis., 26, fasc.10, 2157-2161 (1956) CARD 2 / 2 PA - 1555

supplementary solutions. Chemical binding was determined with sufficient reliability as essentially covalent at least in one of the binary components of the system. Thermal and microstructural analysis showed no essential difference between the character of the crystallization of the alloys. Obviously, a solubility is obtained throughout the entire concentration interval by long annealing. An isomorphism of compounds is possible only with a similar type of bindings. Because of the isomorphism of arsenide and selenide it may therefore be assumed that the atoms of these compounds have a similar distribution of electron density. The arsenoselenides of gallium found by the authors are a group of semiconductors in which arsenic is gradually replaced by selenium. Apparently empty places appear simultaneously in the nodes of the structure occupied by gallium. Such substances are of great interest for a detailed examination of electric properties.

INSTITUTION:

GORYUNOVA, N. A.

137-58-4-6978

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 95 (USSR)

AUTHORS: Goryunova, N. A., Kolemiyets, B. T.

TITLE: Vitreous Semiconductors (Stekloobraznyye poluprovodniki)

PERIODICAL: V sb.: Vopr. metallurgii i fiz. poluprovodnikov. Moscow, AN SSSR, 1957, pp 110-120

ABSTRACT: The possibility of isomorphic substitutions in  $TlSbSe_2$  compounds was studied with the purpose of attempting to discover systems having semiconductive qualities. As the Sb was replaced by arsenic, the electric conductivity  $\sigma$  diminished. However, the substance having the composition  $TlAsSe_2$  did not possess a crystalline structure. An attempt to substitute Te for selenium resulted in an increase in the  $\sigma$  of the system  $Tl_2Se \cdot As_2Se_3 \cdot Tl_2Se \cdot As_2As_3 \cdot Tl_3$ , but the structure continued to be amorphous. A study of the structure and electrical properties of this system assisted in determining the presence of amorphous states in the following systems:  $Tl_2Se \cdot Sb_2Se_3 \cdot Tl_2Se \cdot As_2Se_3$ ,  $Tl_2Se \cdot As_2Se_3 \cdot Tl_2Se \cdot As_2Te_3$ ,  $Sb_2Se_3 \cdot As_2Se_3$ ,  $Tl_2Se \cdot As_2Se_3 \cdot As_2Te_3 \cdot As_2Se_3$ ,  $As_2S_3 \cdot As_2Se_3$ ,  $Sb_2S_3 \cdot As_2S_3$ , which are typical glasses when considered in the light of a number of criteria. The limits of the vitreous state

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